



by Online Safety Systems

SECTION 1

RISK MANAGEMENT REPORT

Report Number	DYNA 20100721-2009
Assessment Date	21-July-2010
Assessor	John Davidson
Company	Dynapac
Make	Dynapac
Model	CC224HF
Type	Rollers, tandem vibratory
Identifier	not specified
Lot Number	
Assessment Purpose	Plant in Use
State	QLD

Important Information

All operators of this item of plant must read and understand this report prior to operating this item of plant. This report pertains to this item of plant as it appeared on the day of inspection.

The safety hazards associated with the operating and maintaining of this item of plant have been identified as far as practical by visual inspection. The condition of this item of plant will change with use. No physical testing has been conducted (eg. Wire rope tests, stress tests, structural/non-destructive tests, noise tests, vibration tests, brake tests, insulation tests etc.) unless stated otherwise in the notes.

Controls outlined in both part 1 and part 2 of section 3 of this report must be maintained at all times whilst this item of plant is in operation. Any information contained in the notes section of this report shall be read in conjunction with section 3. Any information relating to the standard features have been supplied via the manufacturer and shall be used as a guide only until verified.

Additional Risk Assessment may be required, specific to the operating environment, for this item of plant.

All operators and maintenance personnel must be appropriately trained in the use & maintenance of this item of plant.

For further information regarding this report contact Online Safety Systems on 1300 72 88 52

UNIT DETAILS

Make Model Type Dynapac CC224HF Rollers, tandem vibratory

Identifier Assessor Date not specified John Davidson 21-July-2010

SECTION 2 UNIT DETAILS

STANDARD SPECS

- Noise Test Results

1. Manufacturers specified noise level dBA	
2. Ambient noise level dBA	
3. Noise level - Operator position (high idle) dBA	
4. Noise level - Operator position (low idle) dBA	
5. Noise level LHS dBA @ m (high idle)	
6. Noise level Front dBA @ m (high idle)	
7. Noise level RHS dBA @ m (high idle)	
8. Noise level Rear dBA @ m (high idle)	

Body type

Articulated/Rigid	Articulated
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Brakes

Service braking system	Hydrostatic in forward and reverse lever.
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Capacities

Nominal amplitude, high + low (mm)	.9
Water sprinkler tank capacity (lit)	750

Dimensions/Weights

Centrifugal force, high amplitude + low amplitude (kN)	122
Height (mm)	2990
Length (mm)	4490
Operating weight (kg)	7600
Static weight on drums, front/rear (kg)	3850/3850
Turning circle diameter (mm)	10380
Width (mm)	1620

Drives

Drive: single drum/double drum	Double
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Drums

Drum widths front/rear (mm)	1500
Split drums	no
Vibration: single drum/double drum	Double

Engine

Engine displacement (lit)	3.3
Engine make & model	Cummins QSB3.3T3
Engine number	
Net power, SAE rated (kW@rpm)	60kW@2200rpm
Number of cylinders	3

General

Drum mats for hot mix?	no
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Hours

Engine Hours	
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Plant Classifications

Class	
Year	

Transmission

Transmission type	Hydrostatic
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Work Capabilities

Gradeability w/o vib (%)	42
Vibratory frequency, max+min (Hz)	111

EXTRAS

Four Post ROPS

DETAILS

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SECTION 3

RISK CONTROLS

PART 1

This section of the report pertains to hazards created by use of this item of plant which currently do not have risk controls in place. The risk controls recommended in this section have been developed based on relevant Australian Standards, legislation, the hierarchy of risk control in accordance with the guidelines set forth in AS/NZS ISO 31000 – Risk Management and various other sources. The recommended risk control measures must be developed, implemented and validated as effective prior to the operation, maintenance or testing of this item of plant. Controls applied must be dated and initialled adjacent the recommendations. All operators must read and understand the entire contents of this section prior to operating this item of plant.

There are no items in this section.

SECTION 3

RISK CONTROLS

PART 2

This section of the report pertains to risk controls currently in place on this item of plant. This section must be read in conjunction with the safety section of the manufacturers handbook. All operators must read and understand the entire contents of this section prior to operating this item of plant. These controls or equivalent must remain in place at all times whilst this item of plant is in operation.



The manufacturer's Operation handbook has been supplied for this item of plant.

This handbook must be available at all times to all potential operators and supervisory staff. All potential operators must read and be familiar with this handbook prior to operating.

A complete risk assessment/Job Safety Analysis must be undertaken covering all operating processes and environments associated with this item of plant. SWMS should be produced for specific tasks associated with use of this item of plant.



The manufacturer's Maintenance manual (s) has been supplied for this item of plant

These handbook(s) must be available at all times to all users and maintenance staff of this item of plant. All users and maintenance staff must read and be familiar with these handbook(s) prior to maintaining or repairing this item of plant.

A complete risk assessment/JSEA must be undertaken covering all inspection, maintenance, servicing and transportation requirements of this piece of plant prior to use.

A full assessment of the competence of people using the book(s) must also be undertaken

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Review safety rules to ensure they contain the following as a minimum -

GENERAL & START UP

- Read and understand manufacturers operational manual
- Complete pre-operational checklist (never use faulty or defective machinery)
- All operators must be free from the direct and after effects of drugs and alcohol
- Never operate in a poorly ventilated area, carbon monoxide is colourless, odourless and poisonous
- Ensure work area is clear of bystanders and hazards prior to starting engine and operating machine
- Once engine is started confirm control pattern and machine function
- Ensure that you are familiar with all attachments and the clearance distances between attachments and any other part of machine

TRAVEL & OPERATION

- ! ALWAYS WEAR YOUR SEAT BELT
- ! NEVER CARRY PASSENGERS

- Ensure work area is clear of all bystanders
- Always consider ground type prior to travelling machine, use extreme caution on slippery surfaces such as metal, ice etc
- Never travel across slopes, travel up and down slopes only
- Refer to power line approach distance label re safety around power lines

- ! NEVER OPERATE MACHINE OVER "SHELF" ADJACENT EXCAVATION
- ! NEVER OPERATE MACHINE UNDER PRECIPICE OR OVERHEAD OBSTRUCTIONS
- ! ALWAYS USE EXTREME CAUTION WHEN OPERATING ADJACENT BATTER EDGE

- When stopping the roller: " Park on even ground and lower any attachments to the ground. " Shift the gear selector to park position and apply the parking brake. " Turn off the ignition and remove the keys.

TRANSPORT & MAINTENANCE

- ! ALWAYS SWITCH OFF ENGINE AND ENGAGE ARTICULATION LOCKING DEVICE PRIOR TO ANY MAINTENANCE OR TRANSPORTATION
- ! USE EXTREME CAUTION WHEN DRIVING ON & OFF FLOAT - ALWAYS HAVE A SECOND PERSON TO GUIDE YOU

REFUELLING

- Do not refuel roller unless the engine is stopped and ignition turned off



Service and maintenance records are available for this item of plant.

These records must continue to be maintained and stored in a secure area as part of your plant safety management programme. This programme includes the undertaking of regular inspections concerning the general condition of the item of plant including (but not limited to) tyre condition, oil levels and wear and tear on critical items such as brakes and steering, etc. All OEM prescribed, scheduled and non scheduled maintenance must also be documented as part of these records and attended to within a risk management framework.

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Ensure that all operators follow these steps when loading and unloading this machine to and from a flat top truck or trailer, low loader or tilt tray -

Step 1

- Vehicle choice
 - Vehicle load carrying capacity must be equal or greater than the sum of machine, attachments and any ancillary equipment
 - Vehicle must have adequate space for the load
 - Load carrying deck must be clean

Step 2

- Site selection
 - Site for loading and unloading must meet the following criteria -
 - i. Be level in camber (to achieve this direction of carrier unit may need adjusted several times)
 - ii. Longitudinally the combined grade of site and loading ramps/elevated tilt tray must NEVER exceed the gradability of machine being loaded
 - iii. Be stable enough to withstand combined weight of machine and carrier unit
 - iv. Be isolated from traffic movements via its location, barriers or administrative traffic controls
 - v. Be clear of overhead power lines

Step 3

- Loading
 - FLAT TOP/LOW LOADER
 - i. Engage creep gear
 - ii. Clear bystanders from each side of the carrier unit and loading ramps
 - iii. Drive machine on slowly
 - iv. Place machine in transport/park configuration, apply brakes & shut off engine
 - v. Use extreme caution when egressing machine
 - TILT TRAY
 - i. Manoeuvre machine to adjacent tilt tray, NEVER drive machine onto a tilt tray
 - ii. Place machine in park configuration, apply brakes & shut off engine
 - iii. Attach winch cable to machine tow point
 - iv. Clear bystanders from each side of the carrier unit and loading ramps
 - v. Take up slack so that winch has weight of unit
 - vi. Place machine in towing configuration (release brake, select neutral gear/disengage hydrostatic drive)
 - vii. Egress machine, NEVER ride in or on machine whilst being winched onto a tilt tray
 - viii. Winch machine on slowly
 - ix. Place machine in transport/park configuration, apply brakes & shut off engine
 - x. Use extreme caution when egressing machine
 - xi. Engage any transit locks

Step 4

- Restraint
 - See transport restraint guidelines

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Ensure that all operators follow these steps when restraining this machine for transport -

Step 1

- Loading
 - Load machine as per loading guidelines

Step 2

- Load placement
 - Loads must be placed so that the centre of it's mass is in front of the centre of the rear axle/axle group

Step 3

- Lashing choice
 - Always select lashings whose combined lashing capacity is –
 - i. In the forward direction equal to or greater than 2 x the weight of the load
 - ii. In the sideways direction equal to or greater than the weight of the load
 - iii. In the rearward direction equal to or greater than the weight of the load
 - Always select tensioning devices whose capacity is equal to or greater than the chain/webbing lashing capacity

Step 4

- Lashing technique
 - Lashing must be from tie down point on machine to dedicated attachment point on carrier truck or trailer (if no tie down points fitted machine must be tied down by axles or chassis)
 - Lashing point on truck or trailer must have sufficient strength to hold machine weight
 - i. Minimum one chain per tie down point
 - ii. One tensioning device per chain
 - iii. Ratio of horizontal to vertical as close to 2:1 as possible
 - iv. Chains must not at right angles to the machine in any plane (unless two chains used per tie down point)
- Tips
 - NEVER USE FAULTY OR DAMAGED RESTRAINING EQUIPMENT
 - All machines must be restrained including any attachments and ancillary equipment
 - Chains may need to be tied forwards/backwards or across the truck/trailer to achieve the 2:1 ratio or angle less than 90 degrees to machine
 - More than one chain may be necessary per tie down point to achieve restraining capacity
 - Attach lashings to tie rail at rail support intersection



Only persons who are qualified, trained and experienced and or hold the relevant certification/license can operate this item of plant. If there is not a competent/licensed person available for operation of this item of plant then only persons who are supervised by a competent/licensed person can operate this item of plant.

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Review current pre-operational checklist to ensure it contains the following as a minimum -

- Manufacturers operational, maintenance and safety information is available
- Operator access is non slip, sturdily attached and free from damage with three points of contact available during access and egress
- All lights and reflectors are present and serviceable (if fitted)
- Fire extinguisher is present and serviceable
- Operator floor is non slip and free from damage
- Operator warning device (horn) is fully functional
- Operator seat is present, sturdily attached and free from damage
- Operator seat belt present, sturdily attached and free from damage
- ROPS present, sturdily attached and free from damage
- All controls are fully functional and clearly and legibly labelled as to purpose and method of operation
- All tyres and wheel components are in safe working condition and inflated to the correct pressure
- All guards are present, sturdily attached and free from damage - Exhaust & Engine fan, alternator & a/c belts, pulleys and gears
- Amber hazard light is fully functional
- Two mirrors fitted and fully functional (one either side of machine)
- All hydraulic hoses are connected properly and free from leaks and damage (never use your hand to check for leaks, use wood or card board)
- Reverse movement awareness alarm present and fully functional
- All structural components are free from damage and excessive wear

Cabin (if fitted)

- All screens and windows are present and free from damage
- Two exits available
- Air conditioning/heating fully functional

Labelling

- Hearing protection PPE label
- Articulated joint crush zone label fitted to both sides complete with locking device instructions

Fluids

- Fuel level OK
- Engine oil level OK
- Transmission oil level OK
- Hydraulic oil level OK
- Radiator water level OK
- Checked all systems for oil, fuel and water leaks - All OK

Machine function

- Machine functions as per manufacturers operating instructions



Safe access and egress to the cabin/work area(s) must be maintained at all times whilst this item of plant is in operation. It must be non slip, free from damage, located at a height so as to not cause undue body stresses and strains with three points of contact available to personnel at all times.

All personnel must -

1. Always face the item of plant during access and egress.
2. Always maintain three points of contact during access and egress.
3. Never carry an object(s) in his/her hand(s) during access and egress.
4. Never jump off machine.



The operator cabin/work area on this item of plant has a minimum of two (2) possible exits. These must be functional and accessible at all times whenever the item of plant is manned, whether during operation or maintenance activities.



This item of plant is fitted with an instruction label advising that mobile phones must not be used whilst operating this machine. Accordingly all operators must not use a mobile phone at any time whilst operating machine. If phone use is necessary then operator must place machine in park configuration in a safe position prior to phone use. Operators MUST adhere to this advice at all times.

This label must be clear and legible at all times whilst this item of plant is in operation.

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This item of plant is fitted with fully functional audible warning devices such as a horn. They must be easily accessed by operator, and easily identifiable by nearby pedestrians.

All operators should ensure the warning devices are functional at the start of each shift, by completing pre-start checklists. Warning devices should operate automatically where appropriate (eg reversing)



Ensure the cabin/work area safety glass windows and screens are kept clean and free from cracks and other damage at all times whilst this item of plant is in use.



All controls including all levers, buttons, pedals, switches etc, are placed near the operator work position and are easy to reach and operate during the execution of the operator's normal duties. This applies for all persons within the 95th percentile of the normal population distribution.



All controls including all levers, buttons, pedals, switches etc. are clearly labelled as to their purpose and method of operation. These labels must be maintained in a clean and serviceable condition at all times.



The control levers and foot controls must be kept non slip and free from damage at all times.



Ensure all work area floors are non slip and remain free from damage at all times whilst this item of plant is in use.



The operator rear view mirrors fitted to this item of plant must be fully functional and kept clean at all times. There must always be at least one mirror on each side to provide rear vision to the operator to avoid striking bystanders and objects.



The operator seat fitted to this item of plant must remain free from damage and tears, and be permanently and securely fitted at all times.



This item of plant is fitted with an approved and maintained fire extinguisher. Fire extinguisher(s) must be present and fully functional at all times. They must be readily accessible to the operator. Regular inspections must also be carried out in accordance with the manufacturer's requirements and AS 1851 – 1995



This item of plant is fitted with an operator seat belt, this seat belt must be free from damage, permanently and sturdily attached at all times whilst this item of plant is in operation. Operators must use this seat belt at all times during operation.



This item of plant is fitted with a clear hazard warning label re: Operator only, No passengers. Passengers must not be carried at anytime. This label must be clear and legible at all times whilst this item of plant is in operation.

Legislation: State Health & Safety Legislation & Regulation



Dust, exhaust fumes, chemical fumes, sunstroke and sunburn pose serious risk to the operator both short and long term. The appropriate controls for all of these hazards must always be available whilst this item of plant is in operation. If these controls e.g. hats, sunscreen, dust masks etc are not available then operation of this item of plant must cease until these are made available to all operators.



The brakes fitted to this item of plant must be fully functional at all times whilst this item of plant is in operation. The brakes must be regularly inspected and tested. These inspections and tests must be documented as part of your plant safety programme.



The park brake fitted to this item of plant is fully functional at all times. The park brake must be regularly inspected and tested. These inspections and tests must be documented as part of your plant safety programme.



This item of plant has a clear towing instruction label adjacent the recovery tow point. This label contains as a minimum machine weight, towing speed, towline capacity and tow angle. These instructions must be adhered to at all times when towing this item of plant. This instruction label must be clean and legible at all times.



A roll over protective structure (ROPS) to AS 2294, ISO 3471 or SAE J1040 is fitted to this item of plant. A permanent label stating this standard must be attached to the structure at all times. It must also carry a warning label re: wearing of seat belts at all times whilst this item of plant is in operation, accordingly seat belts must be worn at all times during operation.



The Rollover Protective Structure (ROPS) fitted to this item of plant must remain free from damage at all times whilst this item of plant is in operation.

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The warning label stating that the ROPS must not be damaged at any time (including cuts, drill holes, welds and dents) must also be present, clean and legible at all times.



This item of plant has neutral start control in place. It must be fully functional and serviceable at all times whilst this item of plant is in operation.



A reverse movement sensor alarm is fitted to this item of plant. It must be fully functional and serviceable at all times whilst this item of plant is in operation.



This item of plant has clear hazard warning labels re: crush zone, keep clear, that are attached to each side of the articulated joint. These must be present, clear and legible at all times whilst this item of plant is in operation.



This the item of plant is fitted with a safety locking device to the articulated joint (either a locking arm or cylinder locking devices) and a clear, legible instruction labels on both sides of the articulated joint which state that either of these devices must be engaged during any maintenance to the articulated joint. These must be present, serviceable and employed at all times whilst this item of plant is in operation.



The hazard warning labels re: wearing of hearing protection attached to this item of plant refer to the level of noise produced. Permanent hearing damage will result if hearing protection is not worn. These labels must be present, clear and legible at all times whilst this item of plant is in operation.



This item of plant has hydraulic hoses. These hoses must be inspected each day or before each use for wear and tear. If there are visible signs of wear immediate action must be taken to control the risk arising from this wear. These inspections must be documented.

Hydraulic fluid at high pressure can penetrate the skin, never use any part of your body to check for leaks. If oil penetrates the skin seek medical advice immediately. Always use a piece of cardboard or similar to check for suspected leaks.

Hydraulic pressure can be stored and is a hazard. Before disconnection or connection of hydraulic hoses complete the following steps -

1. Stop engine
2. Keep all bystanders clear of the work area
3. Refer to operators manual as to methods to release pressure
4. Wait 5 minutes



The hydraulic hoses to this item of plant are protected against damage arising from contact with the plant structure. Ensure this protection is in place at all times whilst this item of plant is in operation. Inspection of this protection system should be conducted regularly and documented as part of your plant safety programme.



This item of plant is fitted with a sturdy, permanent guard(s) between the hydraulic hoses and any body parts of the operator to provide protection during a hose failure. This guard(s) must be in place at all times whilst this item of plant is in operation.



This item of plant is fitted with a safety beacon . This beacon must meet the following criteria at all times whilst this item of plant fitted is in operation -

- is visible from 200m in all directions (allowing for intermittent obstruction from the plant structure whilst the plant is in operation)
- is fitted in the most appropriate location on machine to maximise visibility without risking continual damage

NOTE: more than one beacon may be fitted to meet these criteria.



All the belts, pulleys and gears are guarded. These guards must be present, fully functional and serviceable at all times whilst this item of plant is in operation and the labels re; do not open or remove while enging is running must be in place and easily seen at all times.



Safe access and egress to the engine bay/work area(s) must be maintained at all times whilst this item of plant is in operation. It must be non slip, free from damage, located at a hieght so as to not cause undue body stresses and strains with three points of contact available to personnel at all times.

All personnel must -

1. Always face the item of plant during access and egress.
2. Always maintain three points of contact during access and egress.
3. Never carry an object(s) in his/her hand(s) during access and egress.
4. Never jump off machine.



The tank(s) on this item of plant have clear, legible label(s) identifying their contents, and if appropriate any necessary controls re: the contents. These must be present, clear and legible at all times. (this includes radiators and petrol/diesel tanks)



The engine fan and alternator belts, pulleys and gears are guarded. These guards must be present and fully functional and serviceable at all times whilst this item of plant is in operation.



The engine fan and alternator belts, pulleys and gears are guarded. These guards have clear legible hazard warning labels re do not open or remove guards while engine is running. These labels must be present, legible and easily seen at all times whilst this item of plant is in operation.



The rear of this item of plant has a hazard warning label re: general plant movement, tail swing, keep clear. It must be present and fully functional and serviceable at all times.



The plant is in original condition.



Regular checks for structural damage must be undertaken. Look for cracks in frames/chassis (current or repaired), bends or damage to structural components, etc.

NOTES

SECTION 4

How to Assess Risk							
Consequences							
		1 – Insignificant Dealt with by in-house first aid, etc	2 – Minor Medical help needed. Treatment by medical professional/hospital outpatient, etc	3 – Moderate Significant non-permanent injury. Overnight hospitalisation (inpatient)	4 – Major Extensive permanent injury (eg loss of finger/s) Extended hospitalisation	5 – Catastrophic Death. Permanent disabling injury (eg blindness, loss of hand/s, quadriplegia)	
Likelihood	A	Almost certain to occur in most circumstances	High	High	Critical	Critical	Critical
	B	Likely to occur frequently	Medium	High	High	Critical	Critical
	C	Possible and likely to occur at some time	Low	Medium	High	Critical	Critical
	D	Unlikely to occur but could happen	Low	Low	Medium	High	Critical
	E	May occur but only in rare and exceptional circumstances	Low	Low	Medium	High	High

How to prioritise the Risk Rating	
Critical	Act immediately to mitigate the risk. Either eliminate, substitute or implement engineering control measures.
High	Act immediately to mitigate the risk. Either eliminate, substitute or implement engineering control measures. If these controls are not immediately accessible, set a timeframe for their implementation and establish interim risk reduction strategies for the period of the set timeframe.
Medium	Take reasonable steps to mitigate the risk. Until elimination, substitution or engineering controls can be implemented, institute administrative or personal protective equipment controls. These "lower level" controls must not be considered permanent solutions. The time for which they are established must be based on risk. At the end of the time, if the risk has not been addressed by elimination, substitution or engineering controls a further risk assessment must be undertaken.
Low	Take reasonable steps to mitigate and monitor the risk. Institute permanent controls in the long term. Permanent controls may be administrative in nature if the hazard has low frequency, rare likelihood and insignificant consequence.

How to control risk	
Elimination	Eliminate the hazard.
Substitution	Provide an alternative that is capable of performing the same task and is safer to use.
Engineering Controls	Provide or construct a physical barrier or guard.
Administrative Controls	Develop policies, procedures practices and guidelines, in consultation with employees, to mitigate the risk. Provide training, instruction and supervision about the hazard.
Personal Protective Equipment	Personal equipment designed to protect the individual from the hazard.

<END OF RISK ASSESSMENT REPORT>

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OPERATOR ACKNOWLEDGEMENT

I the undersigned acknowledge that I have read and understand the risk management report described above.

I also acknowledge that I have received a copy of this risk management report.

Name _____

Company Name _____

Position _____

Signature _____ Date _____

The manufacturers' operational & maintenance handbooks have been supplied, _____ (initial)

(please tick one)

Yes

No